

IN THE CLAIMS

Please amend the claims as follows:

1. (Previously Presented) A method comprising:
validating a header of a packet from a first checksum of the packet;
decrementing a time-to-live field of the header;
recalculating a second checksum of the header;
performing a route lookup; and
forwarding the packet,
wherein the validating a header, the decrementing a time-to-live, the recalculating a second checksum, and the performing a route lookup are performed only once for the packet during transfer among a plurality of ports within a router, wherein the validating a header, the decrementing a time-to-live, the recalculating a second checksum, and the performing a route lookup are performed before the packet is transferred to a switched interconnect/backplane of the router.
2. (Original) The method of claim 1, wherein the performing a route lookup further comprises:
determining a next-hop; and
determining an egress-port.
3. (Original) The method of claim 2, wherein the forwarding further comprises:
forwarding the packet in reference to the egress-port.
4. (Currently Amend) The method of claim 2, wherein the egress-port further comprises a local port ~~on an ingress-forwarding element~~, and the forwarding further comprises:
completing an encapsulation of the packet; and transmitting the packet over the local-egress-port.

5. (Currently Amended) The method of claim 2, wherein the egress-port further comprises a remote port, and the forwarding further comprises:

forwarding the packet to an egress-forwarding element through ~~an internal bus~~ the switched interconnect/backplane of the router;

applying a switch-label that corresponds to the egress-port and next hop;

determining the next hop and the egress-port on which the packet is to be transmitted in reference to the switch-label;

removing the label;

completing a layer-2 encapsulation of the packet; and

transmitting the packet over the egress-port.

6. (Currently Amend) A machine-accessible medium having associated instructions ~~capable of directing to direct~~ a machine to perform:

validating a header of a packet from a checksum of the packet;

decrementing a time-to-live field of the header;

recalculating the checksum of the header;

performing a route lookup;

determining an egress-port; and

forwarding the packet in reference to the egress-port of the packet,

wherein the validating action, the decrementing action and the recalculating action are

performed only once for the packet during transfer among a plurality of ports

within a router, and wherein the validating action, and the recalculating action are

performed by only one port of the plurality of ports of the router and are performed

before the packet is transferred to a switched interconnect/backplane of the router.

7. (Previously Presented) The machine-accessible medium of claim 6, wherein the egress-port further comprises a local port ~~on the ingress-forwarding element~~, and the forwarding further comprises:

completing an encapsulation of the packet; and

transmitting the packet over the local-egress-port.

8. (Currently Amended) The machine-accessible medium of claim 6 wherein the egress-port further comprises a remote port, and the forwarding further comprises:

forwarding the packet to the egress-forwarding element through ~~an internal bus~~ the switched interconnect/backplane of the router;

applying a switch-label that corresponds to the egress-port and a next hop;

determining the next hop and the egress-port on which the packet is to be transmitted in reference to a switch-label;

removing the switch-label;

completing a layer-2 encapsulation of the packet; and

transmitting the packet over the egress-port.

9.-10. (Canceled)

11. (Currently Amend) A method to calculate ~~[[of]]~~ a routing table comprising:

determining the routing table from at least one routing update message;

altering the routing table for each of a plurality of forwarding elements in the router in reference to presence of an egress-port in the forwarding element; and

adding a switch-label corresponding to an actual egress interface to the table, when an egress-port is not present in the forwarding element, wherein the switch-label is unique for every port/next-hop pair on the router.

12. (Currently Amend) A method to calculate ~~[[of]]~~ a routing table comprising:

determining the routing table from at least one routing update message;

altering the routing table for each of a plurality of forwarding elements in the router in reference to presence of an egress-port in the forwarding element; and

performing no altering of the routing table for a forwarding element, when an egress-port is present in the forwarding element.

13. (Canceled)

14. (Currently Amend) A machine-accessible medium having associated instructions ~~capable of directing to direct~~ a machine to perform:

determining the routing table from at least one routing update message;

determining the presence of an egress-port in the forwarding element;

altering the routing table for each of a plurality of forwarding elements in the router in reference to presence of an egress-port in the forwarding element; and

adding a switch-label corresponding to an actual egress interface to the table, when an egress-port is not present in the forwarding element, wherein the switch-label is unique for every port/next-hop pair on the router.

15. (Currently Amend) A machine-accessible medium having associated instructions ~~capable of directing to direct~~ a machine to perform:

determining the routing table from at least one routing update message;

determining the presence of an egress-port in the forwarding element;

altering the routing table for each of a plurality of forwarding elements in the router in reference to presence of an egress-port in the forwarding element; and

performing no altering of the routing table for a forwarding element, when an egress-port is present in the forwarding element.

16. (Currently Amended) A method to switch at least one internal packet comprising:

applying a switch-label to at least one packet, wherein the packet is in accordance with

Open System Interconnection communication model, wherein the switch-label is generated upon a receipt of the packet, wherein the switch-label uniquely identifies an address within a router in which the address is an address of a port/next-hop on an egress-forwarding element within the router, wherein the egress-forwarding element is one of a plurality of forwarding elements within the router, wherein the forwarding elements are operably coupled to each other through a transfer connection; and wherein the transfer connection is selected

from the group consisting of a single bus, and a switched backplane/interconnect;

and

transferring the packet between the plurality of forwarding elements via the ~~switched backplane/interconnect~~ transfer connection, wherein the switch-label is applied to the packet before the packet is transferred to the switched backplane/interconnect.

17. (Original) The method of claim 16, wherein the applying is performed by an ingress forwarding element.

18. (Previously Presented) The method of claim 17, the method further comprising:
receiving the packet;
removing the switch-label from the packet;
completing layer-2 encapsulation of the packet in reference to an external network; and
transmitting the packet, wherein the receiving, the removing, the completing and the transmitting are performed by an egress- forwarding element.

19. (Currently Amend) A machine-accessible medium having associated instructions ~~capable of directing to direct~~ a machine to perform:

applying a switch-label to at least one packet, wherein the packet is in accordance with Open System Interconnection communication model, wherein the switch-label is generated upon receipt of the packet, wherein the switch-label uniquely identifies an address within a router, wherein the address is an address of a port/next-hop on an egress-forwarding element within the router, wherein the egress-forwarding element is one of a plurality of forwarding elements within the router, wherein the forwarding elements are operably coupled to each other through a transfer connection; and wherein the transfer connection is selected from the group consisting of a single bus, and a switched backplane/interconnect; and
transferring the packet between the plurality of forwarding elements via the transfer connection, wherein the switch-label is applied to the packet before the packet is transferred to the transfer connection.

20. (Original) The machine-accessible medium of claim 19, wherein the applying is performed by an ingress forwarding element.

21. (Previously Presented) The machine-accessible medium of claim 20, the method further comprising:

- receiving the packet;
- removing the switch-label from the packet;
- completing layer-2 encapsulation of the packet in reference to an external network; and
- transmitting the packet, wherein the receiving, the removing, the completing and the transmitting are performed by an egress-forwarding element.

22. (Currently Amend) A system comprising:

- a plurality of forwarding elements coupled to a switched interconnect/backplane, each of the forwarding elements to maintain a ~~[[rout]]~~ route lookup table ~~to contain~~ containing addresses associated with the packets entering the forwarding elements, and a switch-label entry table in each of the forwarding elements ~~to contain~~ containing labels associated with the packets transferred internally among the forwarding elements via the switched interconnect/backplane, wherein the labels associated with the packets are generated before the packets are transferred internally through the switched interconnect/backplane; and

- a control element operably coupled to the plurality of forwarding elements, further comprising a processor and a software means operative on the processor for generating the switch-label table for each of the forwarding elements.

23. (Previously Presented) The system of claim 22, wherein one of the forwarding elements further comprises an egress forwarding element and another one of the forwarding elements further comprises an ingress forwarding element, which receives a packet from an external networking environment, generates a local switch-label and associates the switch label with the packet, the ingress forwarding element further comprises a packet forwarding component that forwards the packet through the system using the switch-label.

24. (Previously Presented) The system of claim 23, wherein the ingress forwarding element further validates the packet header checksum, decrements the time-to-live indicator by one, and recalculates the header checksum.

25. (Previously Presented) A apparatus comprising:

a plurality of forwarding elements, each of the forwarding elements to maintain a switch-label entry table to contain labels associated with packets transferred among the forwarding elements; and

a control element operably coupled through a switched interconnect/backplane to the plurality of forwarding elements, further comprising a switch-label table manager that generates the switch-label table for each of the forwarding elements, wherein labels associated with packets are generated before the packets are transferred among the forwarding elements through the switched interconnect/backplane.

26. (Previously Presented) The apparatus of claim 25, wherein one of the forwarding elements further comprises an egress forwarding element and another one of the forwarding elements further comprises an ingress forwarding element, which receives a packet from an external networking environment, generates a local switch-label and associates the switch label with the packet, the ingress forwarding element further comprises a packet forwarding component that forwards the packet through the apparatus using the switch-label.

27. (Previously Presented) The apparatus of claim 26, wherein the ingress forwarding element further validates the packet header checksum, decrements the time-to-live indicator by one, and recalculates the header checksum.

28. (Previously Presented) The apparatus of claim 27, wherein the ingress forwarding element validates the packet header checksum, decrements the time-to-live indicator by one, and recalculates the header checksum only once.

29. (Original) The apparatus of claim 25, wherein the control element further comprises a route table manager that maintains a routing table.

30. (Original) The apparatus of claim 25, wherein the apparatus is a router.